INFINITE PERIPHERALS
PROVIDER OF CUSTOM RECEIPT PRINTING SOLUTIONS

PP-60

Thermal Printer
User Manual

Infinite Peripherals, Inc.
www.ipcprint.com
PP-60 User Manual v1.00

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Contents

Contents 3
Technical Data 4
Box Contents 5
Compatible Devices 6
Getting Started 7
About Your PP-60 8
Status & Operating Modes 11
Loading Paper 12
PDA Installation 13
Diagnostic Information 14
Self-test 15
Dip Switch Settings 16
Memory Switch Settings 18
Loading Drivers 21
Magnetic Card Reader 22
1D Barcode Scanning 23
2D Barcode Scanning 24
Replacing Battery 25
Developing Solution 26
Troubleshooting 27
Contact Information 28

Technical Data

Feature	Specifications
Printing method	Line thermal dot printing
Printing speed	60 mm/s (480 dots/sec) at Full charged battery
Print Width	48 mm / 384 dots per line
Resolution	203 dpi (8 x 8 dots/mm)
Dot pitch	Horizontal – 0.125 mm (8 dots/mm) Vertical – 0.125 mm (8 dots/mm)
Resident fonts	A: 12 x 24 dots B: 9 x 16 dots
Loadable fonts	C: 12 x 24 dots D: 9 x 16 dots
Resident Fonts	Font A: 12 x 24 dots (32 char. per line); Font B: 9 x 16 dots (42 char. per line);
Loadable Fonts	Font C: 12 x 24 dots (32 char. per line); Font D: 9 x 16 dots (42 char. per line);
Logo Registration	1 Black & White BMP format (1-bit per pixel) Size: 384 x 248
Input Buffer	128 KB (131072 bytes)
Resident Barcodes	UCC/EAN 128, EAN 13, EAN 8, UPC A, UPC E, UPC E1, Code 11, Code 39, Code 93, Code 128, GS1, Matrix 2 to 5, Code 11,2 of 5 industrial, 2 of 5 interleaved, Codebar, MSI/Plessey, UK/Plessey, IATA,ISBN, ISMN, ISSN, S-code, Telepen, RSS 14, RSS Limited, RSS- Expanded, PDF417 (2D Barcode: microPDF417, Data Matrix, QR code, Aztec code, Maxi code, Micro QR code)
Communications	RS232 C – max. 115200 bps, USB v 1.1, compatible with 2.0 (Host&Slave) Bluetooth® (Optional)
Readers	Magnetic Card Reader - 3 track head, ISO7811 (optional) Barcode scan engine (optional): 1D - MDL 1000/2000 2D - MDI 1000/2000 EA 15
Emulation	ESC/POS Label/Black Mark Mode
Power supply	Rechargeable Li-ion battery (7,4 V / 1100 mAh) Battery capacity: Per Charge (~20,000 lines)
	AC adapter – DC 9 V, 1 A AC 100 – 240 V, 1,3 A, 50/60 Hz
Environment	Operating temp. +0℃ to +45℃ @ 35 to 85 % RH Storage temp. -20℃ to +60℃ @ 10 to 90% RH
Reliability (MTBF)	50km (printing rate 25% max)
Dimensions	80 (W) X 198 (D) X 56.3 (H) mm
Weight	258 g (without paper); 328 g (with paper)
Thermal paper	58mm +0/-1mm X 45mm diameter, thickness 60 µm
Cables	Standard USB A to B cable; RS 232 cable
PDA device	IPhone; Blackberry; Pocket PC

Table 1

Box Contents

Your IPC PP-60 comes with the following items listed below:

Item	Part Number	Descriptions	Image
1	PP-60xx	PP-60 Thermal printer	
2	-	AC charger	
3	-	1 Roll of thermal paper	
4	-	User's manual	
5	-	RS-232 interface cable	

Table 2

Software (Drivers & SDK):

Because of the continually evolving Driver & SDK to support new mobile devices, Drivers & SDK are distributed online and is available for download at our website indicated below. For details on using the PP-60 Drivers & SDK, please refer to the SDK's documentation.

For the latest PP-60 SDK's, visit our developer web site at:

http://www.ipcprint.com/support/default.asp

Compatible Devices

The PP-60 portable thermal printer is designed specifically for use with many PDA & Smartphone devices.

The PP-60 can be used in a variety of applications where Printing / Card Reading / Barcode Scanning are required.

User Notes:

Compatibility depends on the type of communication method your PDA or Smartphone supports and the availability of PP-60 driver for your device.

- Determine the method of communications your device supports.
- Next determine if your device is supported by the PP-60 Drivers & SDKs.

Compatible devices are added continually. Visit our web site at:

http://www.ipcprint.com

Because of the continually evolving Driver & SDK to support new mobile devices, visit our developer web site at:

http://www.ipcprint.com/support/default.asp

Getting Started

The IPC PP-60 allows you to printer information from your PDA & Smartphone. Before using the PP-60 thermal printer the battery should be properly charged. The following Quick Start guide will help to get your PP-60 ready for use.

Quick Start:

Steps	What to do	Purpose	Where to find more information
1	Charge the PP-60 rechargeable battery pack as recommended in this manual.	The Lithium Ion battery pack should be fully charged before use to ensure long battery life.	Charging Battery, Page 10
2	Load PP-60 print media (Thermal Paper)	PP-60 requires Thermal paper for printing.	Loading Paper, Page 12
3	Connecting PDA to PP-60.	Attaching the PDA to the PP-60 and securely locking PDA cover in place.	PDA Installation, Page 13
4	Install PP-60 Software	To print information from your device, software needs to be installed onto your device.	Printing software is not provided by IPC. Please contact your PP-60 reseller or Infinite Peripherals for recommendations on Third-Party solutions. Developers should refer to the section in this manual on “Developing Solutions”.

Table 3

About Your PP-60

- **PP-60 left view**

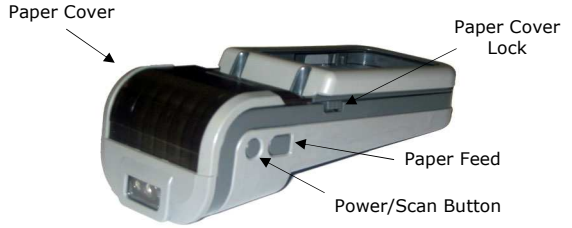


Figure 1

- **PP-60 right view**

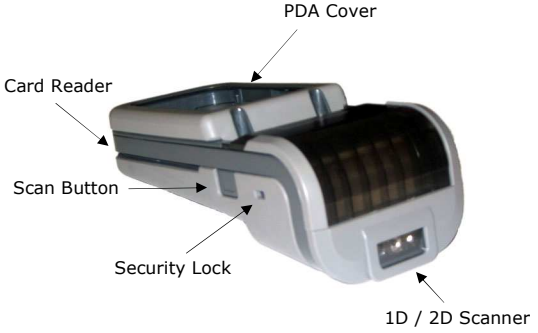


Figure 2

About Your PP-60

♦ **PP-60 left view**

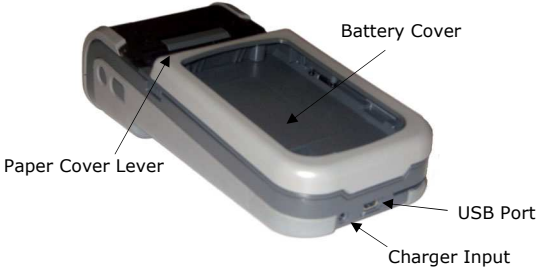


Figure 3

Charging the PP-60

The PP-60 uses a Lithium Ion rechargeable battery pack. Before first use, the PP-60 battery pack should be charged for at least 12 hours.

To prevent electrical damage to the PP-60 and/or battery pack, please use approved AC Charger only.

- **PP-60 Charging**

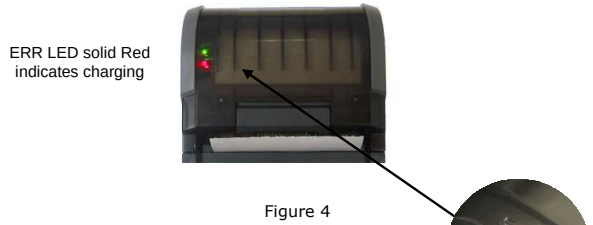


Figure 4

- **PP-60 Full Charge**

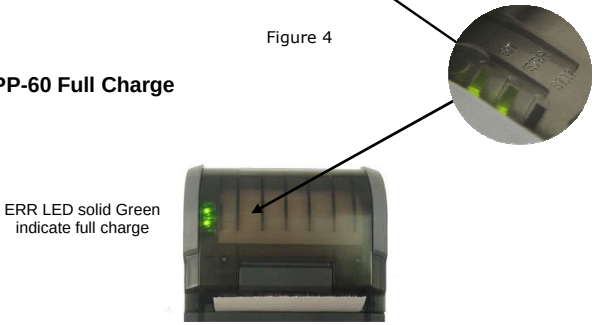


Figure 5

Status & Operating Modes

The PP-60 uses LEDs to indicate various conditions of operation. This may be charging, active or online, battery low conditions. The following explains these conditions and LED indication.

LED	Function
STAT	**Green** – the printer power is on. **Red** – no paper or cover open.
Charging	**Green –** charge ready **Red** - charging
BT	**Green blinking - MSR** **Green lighting – Barcode** **Blue blinking - Bluetooth**

Table 4

Loading Paper

The PP-60 uses a drop-and-load design making paper loading easy and trouble free. To load paper, simply lift up the paper cover latch and drop in the new roll as shown in the steps below.

1. Slide the paper cover latch to unlock the paper cover as shown in the figure on the right.

Figure 6

2. Lift the paper cover lever and open the cover to its fully opened position. Insert paper roll as shown in the figure on the left.

Figure 7

3. Be sure to pull at lease ½ inch or more of media above the top of the paper cover before closing cover.

Figure 8

4. Close the paper cover until it snaps lock.
5. Slide paper cover latch to lock the cover in place.

PDA Installation

The PP-60 uses a top cover PDA snap/locking mechanism to hold the PDA securely in place. Care must be taken when installing the PDA to PP-60.

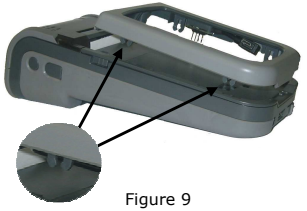


Figure 9

1. Remove the PDA cover as shown in the figure on the right. There are 4-snap locking mechanisms on each corner of the cover.

2. Flip the PDA cover and take care not to damage the 4-pins. Insert the USB connector into the PDA as shown in the figure on the right.

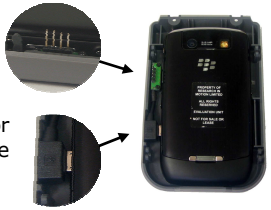


Figure 10

Figure 11

3. Flip cover over then insert the 4-pin header into the connector before securely snapping the cover back in place as shown in the figure on the left.

Diagnostic Information

The PP-60's FEED switch/button is used for entering various printer modes. These modes can be used to assist developers in debugging problems related to programming and communication. The following explain how to access the various operating modes.

Step #1: Make sure the printer is OFF (BT LED is OFF) before performing step #2 or step #3.

Step #2: Press and hold the Feed Button (FB). While pressing the (FB) button, press the (POWER) button momentarily.

Step #3: Press and hold (POWER) button and release when one of the conditions bellow.

Feed Button Operation Modes	
Holding **Feed** button while power **on** for **~ 0.5** sec and releasing it after **1-beep**.	SHORT **SELF TEST** print.
Holding **Feed** button while power **on** for **~ 2.5** sec and releasing it after **2-beep**.	**Hex DUMP mode**. All input data are printed as hexadecimal.
Holding **Feed** button while power **on** for **~ 4.5** sec and releasing it after **3-beep**.	LONG **SELF TEST** print.
Holding **Feed** button while power **on** for more than **8.5** sec and releasing it after the **5-beep 4-tone beep.**	**Program mode –** loading the printer firmware.
Holding **Power** button while power **on** for **~ 4** sec and releasing it after **1-beep**.	**Temporary forcing 9600 bps** serial speed or clearing Bluetooth pair info.
Holding **Power** button while power **on** for **~ 6** sec.	**Hardware Setup Mode.**

Table 5

Note: Care must be taken when entering operating modes to prevent the clearing of factory preset configuration information.

Self-test

The PP-60 has a built-in test pattern that shows the printer's current configuration as well as the various resident printer fonts. The self-test can also be used as a troubleshooting tool to determine printing problems or battery level. The steps below show how the self-test is printed activated.

- Resident font sizes
- Characters per line
- Text formatting
- Resident character set
- Resident barcode symbols
- Printer's Configuration

Figure 12

Dip Switch Settings

The PP-60 is designed to use different methods of communications. Care must be taken to ensure that the DIP Switches are not changed from its default factory configuration unless required.

- **DIP SWITCH SETTINGS:**

The printer has two absolutely different operation modes.

They are determined by the state of switch Sw2:

- Continuous Paper mode
- Black Mark mode

These two modes detect paper present conditions differently. The black mark searching mode is designed for proper alignment of the starting print position on indexed media with printed information.

Switch	OFF	ON
Sw1	Bluetooth enabled	Bluetooth disabled
Sw2	Normal	Black Mark mode
Sw3	None	Xon/Xoff Flow protocol
Sw4	Normal operation mode	Protocol mode

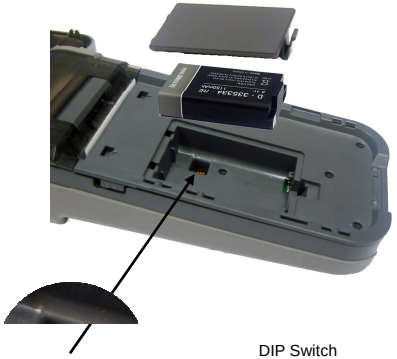
Table 6

DIP Switch Location

The DIP Switch is located under the PP-60 battery. Follow the steps below to locate the switch.

1 - Remove battery cover

2 - Remove battery



DIP Switch

Figure 13

Memory Switch Settings

The PP-60 uses nonvolatile memory for storing some of the printer default configuration. The following table shows the available options.

Memory Switch Options	
Memory Switch (see command reference GS command)	1000000011
BAUD RATE	115200 bps
POWER OFF TIME	10 minutes
PRINT DENSITY	100%
CHARACTER TABLE	WESTERN (1252)

Table 7

Setting Memory Switch

- **MEMORY SWITCH SETTINGS:**

Step #1: Make sure the printer is OFF (STATUS LED is OFF) before performing step #2.

Step #2: Press and hold the line feed button (LF). While pressing the (LF) button, press and hold the (ON) button until the status status LED display solid RED.

Step #3: Release the (ON) button and count (2) Beeps or until the next solid RED LED is displayed. Release LF button and follow and the instruction printed.

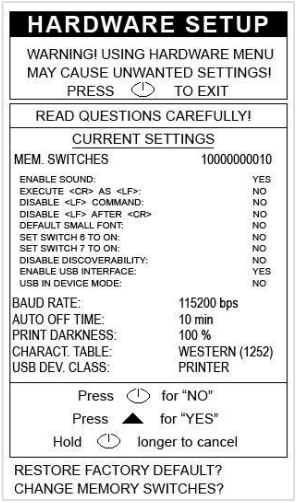


Figure 14

Note: Care must be taken when changing factory preset configuration information.

Memory Switch Details

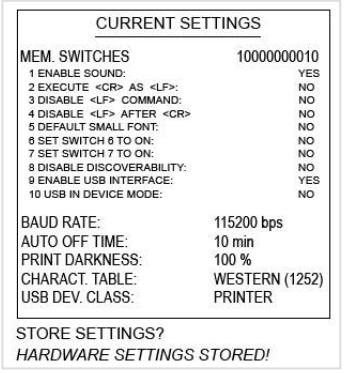

CURRENT SETTINGS
MEM. SWITCHES 10000000010
1 ENABLE SOUND: YES
2 EXECUTE <CR> AS <LF>: NO
3 DISABLE <LF> COMMAND: NO
4 DISABLE <LF> AFTER <CR> NO
5 DEFAULT SMALL FONT: NO
6 SET SWITCH 6 TO ON: NO
7 SET SWITCH 7 TO ON: NO
8 DISABLE DISCOVERABILITY: NO
9 ENABLE USB INTERFACE: YES
10 USB IN DEVICE MODE: NO
BAUD RATE: 115200 bps
AUTO OFF TIME: 10 min
PRINT DARKNESS: 100 %
CHARACT. TABLE: WESTERN (1252)
USB DEV. CLASS: PRINTER
STORE SETTINGS?
HARDWARE SETTINGS STORED!

Figure 15

- **SW1:** Enable/Disable buzzer.
- **SW2:** Execute Carriage Return as Line Feed command.
- **SW3:** Disable/Ignores Line Feed commands.
- **SW4:** Disables Line Feed command after Carriage Return command.
- **SW5:** Set small font as default character size.
- **SW6:** Reserved.
- **SW7:** Reserved.
- **SW8:** Prevents others from discovering printer when set to ENABLE. Must be set after pairing is completed.
- **SW9:** Allow the use of USB port for communications.
- **SW10:** **(OFF)** set USB as the host mode.

Loading Drivers

Loading PP-60 drivers for you're PDA or Smartphones.

BlackBerry Devices:

Blackberry Desktop Manager shown in the figure on the right is used to load third party software on to your device.

Please review your device's documentation on how to use the Application Loader Option to load software on to your device.

Windows Mobile Devices:

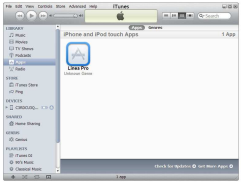
Add/Remove Programs
Select a program's check box if you want to install it on your mobile device, or clear the check box if you want to remove the program from your device.
Note: If a program that you installed is not listed, the program was not designed to be used on your mobile device.
Retrieving Device Data
Applications Already Installed
"Printer Utility" is already installed. Do you want to proceed with the re-install/upgrade?
Yes
No
Space available on device:
Install program into the default installation folder
Remove from both locations:
To remove the selected program from both your device and this computer, click Remove.
Remove
OK
Cancel
Help

Active Sync shown in the figure on the right is used to install third party applications on to your mobile device.

Please review your device's documentation on how to use the Active Sync Manager to load new software on to your device.

In most cases you only need to run the PP-60 installer to start the installation.

Apple Devices:



Apple iTunes Application shown in the figure on the right is used to install third party applications on to your device.

Please review your device's documentation on how to use the Apple iTunes Application to load new software on to your device. In most cases you only need to drag & drop PP-60 iOS files into iTunes and sync.

Magnetic Card Reader

The PP-60 has a built-in magnetic card reader. The card reader incorporates a (3)-track magnetic read head requiring a single swipe to read field data from all three tracks.

Figure 16

The reader's magnetic head faces towards the bottom of the printer. When placing the card into the reader, the magnetic strip must be facing as show in the figure above. Keep the inner edge of the card flat on the inner base of the reader to ensure that the magnetic strip passes over the read head evenly.

When swiping the card through the reader, use an even consistent motion from start to finish.

The speed of swiping can vary however the speed must be consistent from start to finish of the swipe in order to accurately read card data.

User Notes:

To use the magnetic card reader feature, special software must be used to read and process the card information. If you do not have card reading software, please consult your reseller to find out if this software is available or contact Infinite Peripherals for recommendations on compatible third party software solutions.

1D Barcode Scanning

Using the 1D barcode scanner:

The PP-60 uses a scan engine that supports one-dimensional (1D) barcode symbols. The effective reading distance of the barcode reader varies depending on the barcode size.

Scanning 1D Barcodes:

To scan a 1D barcode fist activate the scanner. Then position the scan head as close to the barcode label as possible so that the scan line crosses both ends of the barcode as shown in the figure below.

Slowly pull back the unit increasing the distance between the barcode and scan head until the barcode has been read by the scanner.

Figure 17

2D Barcode Scanning

Using the 2D barcode scanner:

The PP-60 uses a scan engine that supports one-dimensional (1D) barcode symbols. The effective reading distance of the barcode reader varies depending on the barcode size.

Scanning 2D Barcodes:

To scan a 2D barcode fist activate the scanner. Then position the scan head to center the red aiming dot near the center of the barcode and the scan box is over the outer edges of the barcode as shown in the figure below.

Slowly pull back the unit increasing the distance between the barcode and scan head until the barcode has been read by the scanner.

Figure 18

Replacing Battery

To replace the battery in the PP-60 thermal printer follow the steps below.

Steps:

1. Remove the PDA cover as shown in the figure below.

Figure 19

2. Lift the battery cover and battery as showed in the figure below.

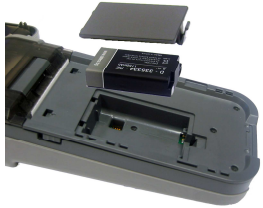


Figure 20

3. Replace the new battery and cover.

Developing Solution

Integrating the PP-60 into your mobile solution requires the use of the PP-60 PDA & Smartphone SDK. The SDK incorporates API specific to developing printing applications and using the integrated Magnetic Card Reader / Smart Card Reader capability of the PP-60.

The table below shows the SDKs currently available for PDA & Smartphone devices.

OS	Language	SDK - IDE
Android	Java	Eclipse
BlackBerry	Java	RIM BlackBerry Java JDE 4.3 and higher/Eclipse
iOS	Object C	Xcode
Windows Mobile	VB.Net	Microsoft Visual Studio 2005 (.Net)
	C ++	Microsoft Visual Studio 2005 (.Net)
	C Sharp	Microsoft Visual Studio 2005 (.Net)

Table 8

For details on using the PP-60 SDK, please refer to the SDK's documentation.

For the latest PP-60 SDK's, visit our developer web site at:

http://www.ipcprint.com/support/default.asp

Troubleshooting

If you're having problems capturing signatures refer to the table below for possible causes.

Item	Problem	Possible Cause
1	Paper feeds after issuing a print job but no printed text visible on paper.	Thermal media is specially coated on outside of roll. Remove paper roll and reload properly. See section "Loading Paper" for details on loading paper.
		Paper cover not installed properly. See section "Loading Paper" for details on replacing paper cover.
2	On-line LED blinks RED continuously.	Battery voltage low.
		Printer out of paper or Paper not properly loaded. See section "Loading Paper" for details on loading paper.
3	Text and/or graphics are printed very light.	Battery voltage low. See section on charging battery pack.
		Thermal media not imaging correctly. Verify that you are using the recommended thermal media.
4	Strange characters are printed when printing.	Battery voltage low. See section on charging battery pack.
5	Printer stops responding to print and paper feed commands.	Remove battery for 5 seconds and reconnect battery.
6	Printing is light or missing only on half of the print width.	Paper cover not properly installed. See section on loading paper. Mechanism jarred loose. Contact technical support.

Table 9

Contact Information

National Sales Headquarters:

Infinite Peripherals, Inc.
1124 Main Street Suite B
Irvine, CA 92614
Toll Free: 866-278-7860
Phone: 949-222-0300
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MobileSales@ipcprint.com

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